63D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { DOCUMENT No. 795.

NAPA RIVER, CAL.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS ON PRELIMINARY EXAMINATION AND SURVEY OF NAPA RIVER, CAL., WITH A VIEW TO MAKING THE NECESSARY CUT-OFFS, CONSIDERATION BEING GIVEN TO ANY TENDER OF COOPERATION ON THE PART OF LOCAL INTERESTS.

FEBRUARY 25, 1914.—Referred to the Committee on Rivers and Harbors and ordered to be printed, with illustration.

WAR DEPARTMENT,
Washington, February 24, 1914.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith a letter from the Acting Chief of Engineers, United States Army, of this date, together with copies of reports from Lieut. Col. Thomas H. Rees, Corps of Engineers, dated July 18, 1913, and January 30, 1914, with map, on preliminary examination and survey, respectively, of Napa River, Cal., made by him in compliance with the provisions of the river and harbor act approved March 4, 1913.

Very respectfully,

LINDLEY M. GARRISON,
Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, February 24, 1914.

From: The Chief of Engineers, United States Army.
To: The Secretary of War.
Subject: Preliminary examination and survey of Napa River, Cal.

1. There are submitted herewith, for transmission to Congress, reports dated July 18, 1913, and January 30, 1914, with map, by Lieut. Col. Thomas H. Rees, Corps of Engineers, on preliminary

examination and survey, respectively, authorized by the following item contained in the river and harbor act approved March 4, 1913:

Napa River, Cal., with a view to making the necessary cut-offs, consideration being given to any tender of cooperation on the part of local interests.

2. Napa River extends from Mare Island Strait to and above the city of Napa and is navigable to said city, a distance of 18 miles. The existing project for the river is to maintain a channel 75 feet wide and 4 feet deep at mean lower low water and to remove trees, snags, logs, etc. In the prosecution of the work it has been found impracticable to limit the dredging on the bars to that depth with clamshell dredges and, owing to overdepth dredging, depths of 6 feet have generally been secured, which has permitted boats to load to a draft of 5 feet or more. For these reasons, the district officer, who is also division engineer, believes that a depth of 6 feet with 1 foot overdepth should be provided in any cut-offs to be made by the United States. He states that there are four bends where cut-offs would be of value to navigation, the localities being designated as Jack's Bend, Spreckels Point, Car Bend, and Horseshoe Bend. The bottom widths proposed are 60 to 100 feet and the total estimated cost is, in round numbers, $43.000. He states that the necessary rights of way will be furnished by the city of Napa, and, as these lands are improved and valuable, their cost constitutes a considerable contribution toward the expense of the proposed improvements. No further cooperation has been offered by local interests. He is of opinion that the locality is worthy of improvement to the extent and in the manner indicated, provided that the lands necessary for the cut-offs and for the dumping grounds are furnished free of cost to the United States.

3. These reports have been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its report herewith, dated February 10, 1914, concurring with the views of the district officer.

4. After due consideration of the above-mentioned reports, I concur with the views of the district officer and the Board of Engineers for Rivers and Harbors, and therefore report that the further improvement by the United States of Napa River, Cal., is deemed advisable to the extent of making four cut-offs, as shown on accompanying map, 6 feet deep at mean lower low water and with widths as proposed by the district officer, at a total estimated cost of $43,000, provided that no expense shall be incurred by the United States for acquiring any lands required for the purpose of this improvement. The first appropriation should be $20,000 for work on Jack's Bend, Spreckels Point, and Car Bend, the balance of $23,000 to be appropriated when the necessary right of way and dumping ground for the cut-off at Horseshoe Bend have been furnished the United States free of cost.

EDW. BURR,
Colonel, Corps of Engineers,
Acting Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS ON SURVEY.

[Second indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
February 10, 1914.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

1. This is a report on preliminary examination and survey of Napa River, Cal., with a view to making the necessary cut-offs, consideration being given to any tender of cooperation on the part of local interests. Napa River, a tributary of Mare Island Strait, is navigable to the city of Napa, a distance of 18 miles. The ordinary range of tide at Napa city is 5.5 feet.

2. The existing project for improvement was adopted in 1888, and provided for dredging and cutting off projecting bends so as to obtain a channel 75 feet wide and 4 feet deep, and for removing logs, snags, and other obstructions, at an estimated cost of $27,600. The total amount expended on the river to June 30, 1913, was about $47,000.

3. The commerce on the river has increased rapidly since improvement was begun and now amounts to more than 200,000 tons. A daily boat schedule is maintained between Napa city and San Francisco.

4. Several bad bends exist in the river which interfere seriously with its free navigation. It is stated that these bends have always been a detriment to navigation, but are more so now on account of the necessity for carrying on traffic at low stages of water. The improvement contemplated, as indicated by the wording of the act, has in view the elimination of these bends by cutting a channel across them or easing off the points. Work is desired at four localities, involving a total cost of $42,720. Provision has been made by local interests to furnish the necessary right of way and dumping grounds free of cost to the United States at the three localities where work is deemed most urgent, namely, Jack's Bend, Spreckels Point, and Car Bend.

5. The district officer states that, although the project depth is now 4 feet at mean lower low water, it has been impracticable to limit the dredging to that depth with the dredges in use, and 6 feet has been generally secured. It is proposed to make the cut-offs to that depth, with a bottom width of 60 to 100 feet, as shown in the table in report on survey. The district officer states that the cost of acquiring the land for the cut-offs is considerable, and that this constitutes the local contribution toward the expense of the improvement.

6. The district officer, who is also division engineer, believes the locality worthy of improvement to the extent proposed above, but with the proviso that work on the Horseshoe Bend shall not be undertaken until the necessary right of way has been furnished without cost to the United States. The amount required for the other three localities, namely, $20,000, should be made available in the first appropriation.

7. There is a large and valuable commerce on this small stream, which is hampered by the existence of the sharp bends described by the local officer. The cost of the cut-offs necessary to overcome the

difficulties is considered reasonable when compared with resulting benefits to general commerce and navigation, and therefore the board concurs in the views of the district officer and recommends a modification of the existing project so as to provide for the cut-offs enumerated herein to a depth of 6 feet, with the widths specified, at a total cost of $42,720, provided the necessary rights of way and dumping grounds are furnished free of cost to the United States. The first appropriation should be $20,000 for work on Jack's Bend, Spreckels Point, and Car Bend, the balance of $23,000 to be appropriated when the necessary right of way and dumping grounds for the cut-off in Horseshoe Bend have been furnished the United States free of cost.

8. In compliance with law, the board reports that, except as contemplated by the above recommendations, there are no questions of terminal facilities, water power, or other subjects so related to the project proposed that they may be coordinated therewith to lessen the cost and compensate the Government for expenditures made in the interests of navigation.

For the board.

W. M. Black,
Colonel, Corps of Engineers,
Senior Member of the Board.

PRELIMINARY EXAMINATION OF NAPA RIVER, CAL.

United States Engineer Office,
First District, San Francisco, Cal., July 18, 1913.

From: The District Engineer Officer.
To: The Chief of Engineers, United States Army.
Subject: Preliminary examination of Napa River, Cal.

1. The examination of this river was made by Mr. H. L. Demeritt, assistant engineer in this office, who reports as follows:

Napa River extends from Mare Island Strait to and above the city of Napa and is navigable to said city, a distance of 18 miles. During the greater part of the year it is a tidal estuary off of San Pablo Bay. The ordinary tidal range at Napa city is 5.5 feet. When heavy rains occur in the winter months the stream becomes torrential for short periods of time, often rising 15 or 16 feet above low water, but usually runs off in 48 hours. These torrential conditions bring down large quantities of gravel and sand, which lodge on the upper bars and form shoals. Floods in this part of the river occur only seldom, once in two or three years. Before improvements were made the bars were numerous and bare at low water, but at the present time the improvement of the river has made it navigable for boats drawing from 4 to 5 feet of water to near the low-water stage.

A daily boat schedule is maintained between Napa city and San Francisco. In past years the boats have not run on schedule time and were only able to traverse the upper river at medium or high stages of the tide, but at the present time, on account of the continued improvement of the river by the Government, the boats are able to make schedule time except at extreme low stages of the tide.

The project for this river is to maintain a channel 75 feet wide and 4 feet deep at low water and to remove trees, snags, logs, etc. Practically all the obstructions of this kind have been removed and each dredging has improved the navigability of the stream each year, and bars, when they do form, are far smaller than when improvement was first commenced.

A dredge is now in operation improving a few places. Several very bad bends exist in the river, which interfere with its free navigation. The banks of the river are permanent, and no erosion or change takes place except a general wear of the

banks, which increases the sharpness of the bends and increases the difficulty of passing. These bends have always been a detriment to navigation, but are more especially so at the present time, when it is desired to navigate the river at low stages of water. The bends where cut-offs would be of great value to navigation are shown on the accompanying map, and are named and described as follows: Jack's Bend, Spreckels Bend opposite the Asylum Wharf, Car Bend, and the bend below Asylum Slough to Suscol Bend.

Jack's Bend is within the city limits of Napa City and is the most difficult place to make a cut-off, as the natural ground is about 15 feet above low water, and it would be necessary to use a hydraulic dredge in making the cut in order to dispose of the material.

At Spreckels Bend it is necessary to cut off the point only, which can be done with a clam-shell dredge.

A cut-off at Car Bend is a simple proposition, as the surface of the ground is only 8 feet above low water, and the excavation can be made with a clam-shell dredge, and the material can be placed ashore.

A cut-off at the bend below Asylum Slough to Suscol Bend would eliminate a bad turn in the river and materially shorten the distance. The natural surface of the ground is only 8 feet above low water, and the excavation could be easily made with a clam-shell dredge and the material placed ashore.

A map accompanies this report which shows the river and the general location of these proposed cut-offs. The right of way for each of these improvements will be of considerable value. The officials of the city of Napa have signified their intention to furnish the right of way for these cut-offs to the United States Government free of expense. This is the only cooperation by local interests that has been tendered.

2. The locality has also been visited by the district engineer, who is also division engineer, and who concurs in the above report. The commerce of the river amounts to 231,725 short tons annually, which is valued at $12,719,747. Terminal facilities at Napa City are ample for the existing commerce, are reached by public roads, and are open to all on equal terms.

3. There are no related questions of water power, drainage, or reclamation to be considered.

4. No special survey will be necessary, as existing surveys and maps are sufficient for the preparation of plans and estimates.

5. It is recommended that such plans and estimates be authorized with a view to modifying the existing project so that it will include the dredging of the cut-offs at the sharp bends herein described.

THOS. H. REES,
Lieutenant Colonel, Corps of Engineers.

[Second indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
August 12, 1913.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY.

For reasons stated herein, the board concurs with the district officer, who is also division engineer, in recommending an estimate of cost in order to determine the extent and advisability of the improvement. It is suggested that the district officer investigate and report whether local interests should cooperate by furnishing dumping grounds for dredged materials as well as rights of way for the cut-offs.

For the board:

W. M. BLACK,
Colonel, Corps of Engineers,
Senior Member of the Board.

SURVEY OF NAPA RIVER, CAL.

UNITED STATES ENGINEER OFFICE,
First District, San Francisco, Cal., January 30, 1914.

From: The District Engineer Officer.
To: The Chief of Engineers, United States Army.
Subject: Survey of Napa River, Cal.

1. The survey of this locality was authorized by the river and harbor act of March 4, 1913, and was ordered by the Chief of Engineers in letter of August 15, 1913.

2. A report on the preliminary examination of Napa River, Cal., with a view to making the necessary cut-offs, consideration being given to any tender of cooperation on the part of local interests, was submitted July 18, 1913, containing a description of the locality, of the sharp bends where cut-offs are desired, and of the commerce affected. It was also therein stated that no special survey will be necessary, as existing surveys and maps are sufficient for the preparation of plans and estimates.

3. It was found, however, that borings would be necessary to determine the character of material to be excavated and the presence or absence of rock within the proposed new channel lines. A map is submitted herewith showing the location of the proposed cut-offs and the position of borings, with the character of material encountered. The quantities involved and estimates of cost are given in the following table:

Cut-offs, Napa River, Cal.

Location.	Length.	Width at bottom.	Cut below mean lower low water plus 1 foot overdepth.	Cubic yards.	Price per cubic yard.	Cost.	Plus 10 per cent for contingencies.	Total cost.
	Feet.	*Feet.*	*Feet.*					
Jack's Bend	600	80	6+1	46,500	$0.25	$11,625.00	$1,162.50	$12,787.50
Spreckles Point	220	60	6+1	6,400	.15	960.00	96.00	1,056.00
Car Bend	650	80	6+1	34,000	.15	5,100.00	510.00	5,610.00
Horseshoe Bend	2,250	100	6+1	[1] 86,259	.06	5,175.54	517.55	23,266.74
				[2] 62,667	.15	9,399.05	939.90	
				[3] 6,577	1.00	6,577.00	657.70	
Grand total								42,720.24

[1] Soft mud. [2] Blue clay. [3] Rock.

4. At Jack's Bend the material will be deposited by a pipe-line dredge in the old bend of the river, and no additional land will be required for a dumping ground. The land necessary for the cut-off has been acquired by the city of Napa and will be conveyed to the United States free of cost.

5. At Spreckels Point it is necessary only to cut away a projecting point to ease off the turn. This work may be done with a clamshell dredge, depositing the material on shore, permission to do so being secured of the owners by the city of Napa.

6. At Car Bend the cut-off will be made with a clamshell dredge, depositing the material on shore. The city of Napa has acquired the

land necessary for this cut-off and for the adjacent dumping grounds and will convey the same to the United States free of cost for these purposes.

7. At Horseshoe Bend the cut-off will be made with a clamshell dredge, depositing the material in levees on either side. In this proposed channel rock was encountered by the borings at depths of from 3 to 5 feet below mean lower low water, amounting to 6,577 cubic yards above the 7-foot depth grade plane. The rock is moderately soft and can be readily blasted and removed. No steps have as yet been taken by the city of Napa to secure the land necessary for this cut-off and adjacent dumping grounds. The work here is not so urgent as work at the other bends, but it should be included in the project, with a provision that no work shall be done at this point until the necessary land shall be conveyed to the United States free of cost.

8. Although the project for Napa River provides for a depth of only 4 feet at mean lower low water it has been impracticable to limit the dredging of the bars to that depth with clamshell dredges, and owing to overdepth dredging, depths of 6 feet have generally been secured. The vessels plying on the river load to a draft of 5 feet or more and a depth of 6 feet is necessary to carry them at low tide. It is therefore recommended that 6 feet (plus 1 foot for overdepth dredging) be adopted as the initial depth in the proposed cut-offs, to allow for the probable wash of the newly cut banks until they attain stable slopes.

9. The cost of future maintenance of the channel will not be increased by making the cut-offs, but will probably be somewhat diminished owing to the shorter length of channel and to the less obstructed flow of tides and freshets.

10. The cost to the city of Napa of acquiring the lands for the cut-offs is not known, but these lands are improved and are valuable and their cost constitutes a considerable contribution toward the expense of the proposed improvements. No further contribution is tendered by local interests.

11. The city of Napa is visited by occasional floods and has just experienced one of unusual severity. No great damage is done, beyond a serious inconvenience and a temporary cessation of business activities. The proposed cut-offs will afford a freer run-off to the flood waters and will ameliorate these conditions to a slight extent. Otherwise there are no questions of drainage, water power, or related subjects to be considered.

12. The sharp bends herein described are serious obstructions to navigation, especially at low stages of the tide and during high winds. The proposed cut-offs will make a marked improvement in these conditions and will enable boats to maintain regular schedules independent of winds and tides. For these reasons, and because of cooperation by local interests to the extent of furnishing the required lands, and on account of the moderate cost of the work, this locality is deemed worthy of improvement by the United States to the extent and in the manner above stated, provided that the lands necessary for the cut-offs and for the dumping grounds be conveyed free of cost to the United States.

13. The work at Jack's Bend, Spreckels Point, and Car Bend should be done first under a single contract, and, if undertaken, the

initial appropriation should provide all the funds included in the estimates for these points, namely, $20,000. The balance necessary for the cut-off at Horseshoe Bend ($23,000) should not be appropriated until the land required for this cut-off and dumping grounds has been acquired by local interests and tendered to the United States for this purpose.

THOS. H. REES,
Lieutenant Colonel, Corps of Engineers.

[For report of the Board of Engineers for Rivers and Harbors on survey, see page 3.]

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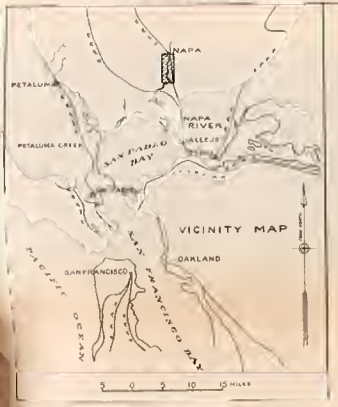
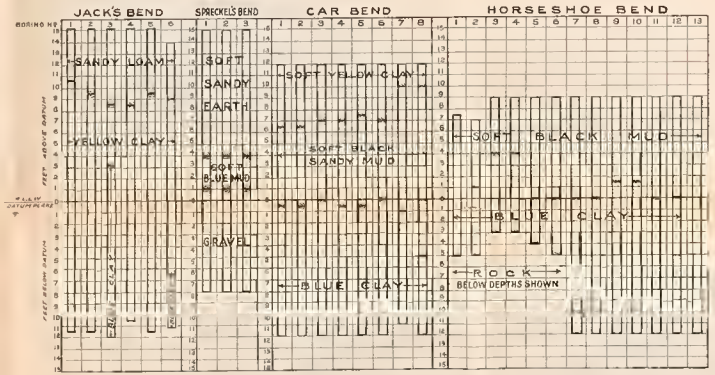
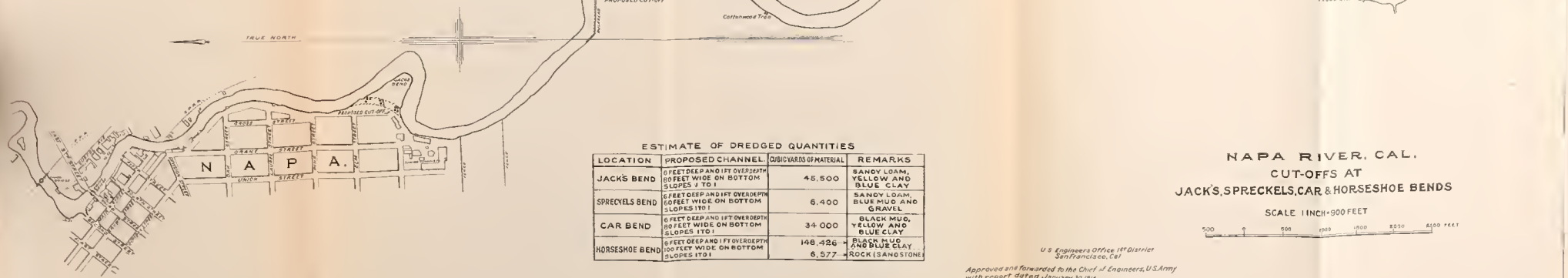


SCHEDULE OF BORINGS





ESTIMATE OF DREDGED QUANTITIES

LOCATION	PROPOSED CHANNEL	CUBIC YARDS OF MATERIAL	REMARKS
JACK'S BEND	6 FEET DEEP AND 1 FT OVERDEPTH 80 FEET WIDE ON BOTTOM SLOPES 1 TO 1	45,500	SANDY LOAM, YELLOW AND BLUE CLAY
SPRECKELS BEND	6 FEET DEEP AND 1 FT OVERDEPTH 60 FEET WIDE ON BOTTOM SLOPES 1 TO 1	6,400	SANDY LOAM, BLUE MUD AND GRAVEL
CAR BEND	6 FEET DEEP AND 1 FT OVERDEPTH 80 FEET WIDE ON BOTTOM SLOPES 1 TO 1	34,000	BLACK MUD, YELLOW AND BLUE CLAY
HORSESHOE BEND	6 FEET DEEP AND 1 FT OVERDEPTH 100 FEET WIDE ON BOTTOM SLOPES 1 TO 1	148,426	BLACK MUD AND BLUE CLAY
		6,577	ROCK (SANDSTONE)

NAPA RIVER, CAL.
CUT-OFFS AT JACK'S, SPRECKELS, CAR & HORSESHOE BENDS

SCALE 1 INCH = 900 FEET

500 0 500 1000 1500 2000 2500 FEET

U.S. Engineers Office 1st District
San Francisco, Cal

Approved and forwarded to the Chief of Engineers, U.S. Army
with report dated January 30 1914

Thos H Rees
Lieut Colonel, Corps of Engineers U.S. Army

House Doc. No. 795; 63d Cong., 2d Sess.